

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number  
WO 2004/057068 A1

(51) International Patent Classification<sup>7</sup>:  
D01D 1/02, C08L 89/00

D01F 4/02,

(74) Agent: HARRISON, Robert, J.; Rouse Patents, Windsor  
House, Cornwall Road, Harrogate HG1 2PW (GB).

(21) International Application Number:  
PCT/EP2003/014786

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date:  
23 December 2003 (23.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0230102.6 23 December 2002 (23.12.2002) GB

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): SPINOX LIMITED [GB/GB]; Units 14-15, Galaxy House, New Greenham Park, Newbury, Berks RG19 6HW (GB).

**Published:**

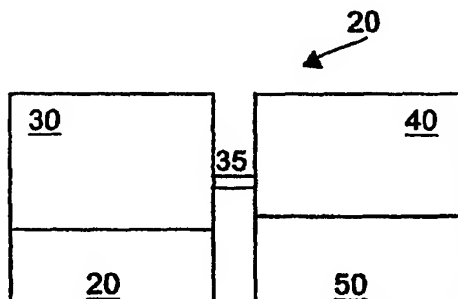
- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): KNIGHT, David, Philip [GB/GB]; Spinox Limited, Units 14-15, Galaxy House, New Greenham Park, Newbury, Berks RG19 6HW (GB). PINNOCK, Larissa [RU/GB]; Spinox Limited, Units 14-15, Galaxy House, New Greenham Park, Newbury, Berks RG19 6HW (GB).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: APPARATUS AND METHOD FOR STORING PROTEINS



(57) Abstract: An apparatus for the storage of a protein (20) comprising a first compartment (30) for storing the protein (20) and a second compartment (40) for storing an alkaline buffer (50), the second compartment (40) being in fluid communication with the first compartment (30) is described. In one preferential embodiment of the invention, the alkaline buffer comprises calcium ions which encourage the gelling of the protein (20). A method for the storage of a protein (20) is also described. The method comprises: a first step of placing the protein in a first storage compartment (30); a second step of exposing the protein (20) to an alkaline buffer (50); and a third step of maintaining the protein (20) in the alkaline atmosphere in the first storage compartment (30).

WO 2004/057068 A1

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/14786

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 D01F4/02 D01D1/02 C08L89/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 D01F D01D C08L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	ANON.: "Protein stability and storage" 'Online! 1 June 2003 (2003-06-01), PIERCE BIOTECHNOLOGY, INC, XP002278207 Retrieved from the Internet: URL:www.piercenet.com/files/TR0043dh4-Prot ein-storage.pdf> the whole document	1-33
A	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 03, 31 March 1997 (1997-03-31) & JP 8 295697 A (KANEBO LTD), 12 November 1996 (1996-11-12) abstract  ----- -/--	1-33

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\* & \* document member of the same patent family

Date of the actual completion of the international search

27 April 2004

Date of mailing of the international search report

17/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Tarrida Torrell, J

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/14786

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 03/037925 A (VOLLRATH FRITZ) 8 May 2003 (2003-05-08) the whole document	1-33
P,A	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 05, 12 May 2003 (2003-05-12) & JP 2003 002898 A (KOWA CO; AGRICULTURE FORESTRY & FISHERIES TECHNICAL INFORMATION SOCIETY), 8 January 2003 (2003-01-08) abstract	1-33

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP 03/14786

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 8295697	A	12-11-1996	NONE	
WO 03037925	A	08-05-2003	WO 03037925 A2	08-05-2003
JP 2003002898	A	08-01-2003	NONE	